DOCUMENT RESUME

ED 057 745 24 HE 002 731

AUTHOR	McKeachie, Wilbert J.
TITLE	Studies of Student Ratings of Faculty. Final Report.
INSTITUTION	Michigan Univ., Ann Arbor. Coll. of Literature, Science, and the Arts.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
REPORT NO	R-002710-1-F
BUREAU NO	BR-0-E-146
PUB DATE	Sep 71
GRANT	OEG-5-71-0003(509)
NOTE	41p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*College Teachers; Effective Teaching; *Higher Education; *Student Opinion; *Student Teacher Relationship; *Teacher Evaluation

ABSTRACT

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WILBERT J. McKEACHIE

September 1971

U.S. Department of Health, Education, and Welfare
Office of Education
Grant No. OEG-5-71-0003(509)
Washington, D.C.

Department of Psychology

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ED057745

THE UNIVERSITY OF MICHIGAN

COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS
Department of Psychology

Final Report

STUDIES OF STUDENT RATINGS OF FACULTY

Wilbert J. McKeachie

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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OFFICE OF EDUCATION
GRANT NO. OEG-5-71-0003(509)
WASHINGTON, D.C.

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OFFICE OF RESEARCH ADMINISTRATION ANN ARBOR

September 1971

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ABSTRACT

Reports of all published factor analyses of student ratings of college faculty were analyzed to determine what common factors emerge and to identify items likely to be useful in discriminating teachers along basic dimensions of difference. A 39-item form was administered to students of 18 instructors both at the beginning and end of a semester course. Results were analyzed both by factor analysis and multiple discriminant analyses. The dimensions emerging were compared with those reported earlier by Isaacson, et al. (1964). The Isaacson, et al. data were reanalyzed by the methods used in the present study. The following dimensions seemed common to the two studies:

structure
skill
rapport

Structure and skill also appeared in pretest data collected during the first week of classes.

The differences between the results of multiple discriminant analysis and factor analysis point to differences between student stereotypes of teacher behavior and differences between teachers. Both analyses provide useful information, but for uses in which the primary concern is to compare one teacher with another, the dimensions derived by multiple discriminant analyses seem likely to be more useful.

3 A

INTRODUCTION

Effective teaching is increasingly a major topic in discussions of higher education. Students, administrators, and perhaps even faculty would like to have effective teaching encouraged and rewarded. But to do this some system of evaluation must be found. Since the purpose of teaching is student learning, students are an obvious possible source of information. Typically, each college's student or faculty committee devises a rating form based on its own impressions of the qualities most important for their purposes. Forms vary in length from one or two items to fifty or more. Given a limited amount of time for administration, one would like to get the most possible information from the fewest possible items. If many items are measuring the same quality, one would prefer to substitute items measuring other characteristics differentiating teachers.

The typical method of solving this problem is factor analysis. But as Norman (1967), Gollob (1968), and others have pointed out, the results of factor analysis are muddied by confounding a number of sources of variance: items, raters, ratees, and interactions. Our previous research (Isaacson, McKeachie, et al., 1964; McKeachie, Lin, and Mann, 1971) has identified six factors that seem relatively stable across teachers and courses. While we believe that these factors make theoretical as well as empirical sense, we recognize that the criticisms of conventional factor analysis are applicable.

The purpose of the present study was to attempt to clean up the factor analytic studies by determining what dimensions actually differentiate teachers.

In other publications (McKeachie, 1969) we have suggested that the type of scale used to assess student opinion about teaching should be determined by the purposes of the scale. Almost all of these purposes, however, involve discrimination among teachers. For example, scales designed to assist in administrative decisions such as salary increases for good teachers, as well as those designed to assist in choosing which courses to elect, require effective differentiation of one teacher from another. Even scales designed primarily as feedback to a teacher for his own self-improvement might well involve items which inform the teacher about how he differs from other teachers. Thus the use of multiple discriminant analysis to identify dimensions of differences between teachers should be preferable to factor analysis.

PROCEDURES

CONSTRUCTION OF A RATING FORM

All published factor analytic studies of student ratings of college teachers were reviewed. From these studies thirty-nine items were chosen which had had high loadings on factors identified in the previous studies. These items were administered both at the first meeting (Pretest) of the course "Introduction to Psychology as a Natural Science" and during the last week of the course (Posttest). (The forms used are included in Appendix A.)

SAMPLE OF TEACHERS

The sample of teachers consists of 13 male and 5 female instructors (teaching fellows) in an introductory psychology course. Half of these teachers taught one section and another half taught two sections. Because our interest focused on the differences between teachers, each teacher was treated as a unit. Each teacher also rated himself on the same rating form used by the students during the term.

SAMPLE OF STUDENTS

Three hundred and twenty-one (321) students completed the rating form in the pretest and 336 students completed the rating form in the posttest. The number of students varied from 10 to 46 for those 18 teachers in the posttest.

METHODS OF DATA ANALYSIS

Multiple Discriminant Analysis

Multiple discriminant analysis may be considered as "an extension of simple-classification analysis of variance to include simultaneously a group of dependent variables" (Veldman, 1967). The main purpose of this technique is to find a set of linear combination of variables (factors) which can, better than any other linear combination, discriminate between groups. In other words, this technique attempts to find a set of discriminant functions. The first function maximizes the ratio of the among-groups cross products of deviation matrix (A matrix) to the pooled within-group deviation scores cross product matrix (W matrix). The second discriminant function maximizes the ratio of the residual A matrix to the residual W matrix after the effect of the first function has been removed, and so forth (Tiedeman, 1951; Rulon, 1951; Bryan, 1951; Tatsuoka and Tiedeman, 1954, 1963; Cooley and Lohnes, 1962; and Nunnally, 1967). "...the factoring of the W^{-1} A matrix may be constructed as the partitioning of the discriminating power of the set of dependent variables into independent components, which may perhaps lead to or support hypotheses about underlying sources of the variation among the groups" (Veldman, 1967).

The present study utilized a computer program called DSCRIM (Veldman, 1967) to get k discriminant dimensions (K = G-1, where G is number of groups). A mxk correlation matrix (m: number of variables) between the original variables and the discriminant functions variables was generated. "The correlation coefficients may be interpreted in much the same way as factor loadings

to describe the discriminant dimensions in terms of the name of the original variables" (Veldman, 1967).

However, not all the k discriminant functions may be significant. Rao (1952) has proposed a chi-square test of significance for each discriminant function. This test was applied. The significant dimensions remaining after use of the chi-square test were then subjected to a varimax rotation program (Kaiser, 1958) to obtain a simple structure. The application of the "Wrigley-Kiel criterion" in the rotation program (Wrigley has suggested that 3 be the minimum number of variables for defining a factor) further reduced the number of dimensions remaining for a meaningful psychological interpretation.

RESULTS

Three sets of results are presented.

MULTIPLE DISCRIMINANT ANALYSIS OF POSTTEST STUDENT RATINGS (1971 DATA)

The multiple discriminant analysis of the posttest student ratings of 18 teachers first yielded 17 discriminant dimensions. Rao's chi-square test of significance showed that only the first 10 dimensions were significant at the 5% level or less. The 39 x 10 factor matrix was then subjected to a varimax rotation program and only 5 factors emerged after the rotation. Table I lists the items with loadings of .30 or above on each of these five discriminant dimensions.

The content of items loaded on each dimension suggest that the first dimension is clearly a "Teaching Skills" factor with emphasis on teacher's abilities to stimulate student's intellectual curiosity, to increase the interest of class member, to present his teaching materials, etc. The second dimension is "Structure." The third is a "Group-Interaction" factor with emphasis on teacher-student interaction in the classroom. The fourth is a "Feedback" factor with emphasis on the discussion of test material after examination. The fifth dimension seems to be an "Achievement Standards" factor with moderate loadings on "teacher's emphasis on grades" and "high quality work" items. These five dimensions seem quite meaningful in differentiating teachers.

Univariate F-Tests results showed that only the following three items of the thirty-nine used in the present study failed to show significant

TABLE I

VARIMAX ROTATED FACTORS OF MULTIPLE DISCRIMINANT ANALYSIS FACTORS OF STUDENT RATINGS

(Psychology 170, Winter, 1971, 18 T.F.)

Factor I - Skill

.66	How would you rate your instructor in general (all-around) teaching ability?
.57	He stimulated the intellectual curiosity of his students.
.56	He increased the interest of class members in his class.
.54	In his class students gained a great deal of knowledge about this subject matter.
.51	The content of examinations was appropriate.
.46	He listened attentively to what class members had to say.
.46	He explained clearly and his explanations were to the point.
.46	He was friendly.
.45	The instructor was skillful in observing student reactions.
.45	In his class students learned how to think more clearly about the area of this course.
.44	He appeared sensitive to students' feelings and problems.
.43	He was tolerant of student opinions.
.42	In his class, I felt free to ask questions, to express my opinions and disagree.
.40	The instructor put his material across in an interesting way.
.37	How would you rate the overall value of this course?
.36	His course was well organized.
.34	The students frequently volunteered their own opinions.
.33	The students in the class were friendly.

Factor II - Structure (Formal Authority)

.73	His course was well organized.
.65	He followed an outline closely.
.59	He had everything going according to schedule.
.50	He explained clearly and his explanations were to the point.
.39	He decided in detail what should be done and how it should be done.
.32	In his class students learned how to think more clearly about the area of this course.
-.37	The instructor assigned very difficult readings.

TABLE I (Concluded)

Factor III - Group Interaction

.67	The students frequently volunteered their own opinions.
.64	Students argued with one another or with the instructor, not necessarily with hostility.
.45	The students in the class were friendly.
.35	He was tolerant of student opinions.
.33	The instructor was skillful in observing student reactions.
.32	He listened attentively to what class members had to say.
.31	In his class, I felt free to ask questions, to express my opinions and disagree.

Factor IV - Feedback

.67	He discussed test material after each quiz or exam.
.40	The instructor assigned very difficult readings.
-.33	He criticized poor work.

Factor V - Achievement Standards

.42	He continually emphasized grades.
.37	He kept students well informed of their progress.
.31	The students in the class were friendly.
.30	He stressed high quality work.

differences among the 18 teachers.

"He maintained definite standards of student performance."
"He responded to hostility constructively."
"He asked more than students could get done."

COMPARISON BETWEEN 1971 AND 1961 DATA ON 24 COMMON ITEMS

Student Ratings of Male Teachers

Out of 39 items used in the present study, 24 items had been selected from a rating form used in 1961 in a previous study (Isaacson, et al., 1964). In the Isaacson, et al. study, the factors identified were based on student rating data from a sample of students across 16 teachers. The present study reanalyzed the 1961 data by using the multiple discriminant analysis technique for student ratings on 15 male teachers (615 students) and analyzed the same items in the 1971 data for student ratings on 13 male teachers (264 students). The purpose was to provide some comparative data on the dimensions identified from two different samples of teachers and students.

Following the same procedures as used for the analysis of the 39 items, we found four dimensions for the 24 items. Tables II and III present the items and loadings on the 4 factors identified in the 1971 and in the 1961 data, respectively. A list of factors identified in both years is summarized as follows:

Factor	1971	1961
1	Teaching Skills	Teaching Skills
2	Structure	Overload
3	Group-Interaction	Structure
4	Overload	Feedback

TABLE II

VARIMAX ROTATED FACTORS OF MULTIPLE DISCRIMINANT ANALYSIS FACTORS OF STUDENT RATINGS

(24 Items, 13 Male T.F., 264 Students, Psychology 170, Winter, 1971)

Factor I - Skill

.78	How would you rate your instructor in general teaching ability?
.61	He explained clearly and his explanations were to the point.
.61	He stimulated the intellectual curiosity of his students.
.57	He increased the interest of class members in his class.
.52	The instructor put his material across in an interesting way.
.51	The instructor was skillful in observing student reactions.
.45	He listened attentively to what class members had to say.
.44	How would you rate the overall value of this course?
.43	The students frequently volunteered their own opinions.
.41	In his class, I felt free to ask questions, to express my opinions and disagree.
.40	He was friendly.
.40	He had everything going according to schedule.
.36	He told students when they had done a particularly good job.

Factor II - Structure

.57	He decided in detail what should be done and how it should be done.
.54	He followed an outline closely.
.51	He continually emphasized grades.
.50	He had everything going according to schedule.
.36	He explained clearly and his explanations were to the point.
.31	He maintained definite standard of student performance.
-.41	He was permissive and flexible.

Factor III - Group Interaction

.64	Students argued with one another or with the instructor, not necessarily with hostility.
.52	The students frequently volunteered their own opinions.
.40	The instructor complimented students on their work in front of others.
.37	The students in the class were friendly.
.30	He was permissive and flexible.

TABLE II (Concluded)

Factor IV - Overload (Difficulty)

.77	The instructor assigned very difficult reading.
.41	He was friendly.
.37	The students in the class were friendly.
.35	He continually emphasized grades.
-.30	He followed an outline closely.

TABLE III

VARIMAX ROTATED FACTORS OF MULTIPLE DISCRIMINANT
ANALYSIS FACTORS OF STUDENT RATINGS

(24 Items, 15 Male T.F., 615 Students, Spring, 1961)

Factor I - Skill

.74	He put his material across in an interesting way.
.74	How would you rate your instructor in general teaching ability?
.67	He explained clearly and his explanations were to the point.
.62	The instructor was skillful in observing student reactions.
.60	He stimulated the intellectual curiosity of his students.
.46	He tried to increase the interest of class members in his subject.
.39	He maintained definite standards of student performance.
.35	The students frequently volunteered their own opinions.
.32	He complimented a student on his work in front of others.

Factor II - Overload

.78	The instructor assigned very difficult reading.
.54	He asked for more than students could get done.

Factor III - Structure

.80	He followed an outline closely.
.72	He had everything going according to schedule.

Factor IV - Feedback

.59	He told students when they had done a particularly good job.
.48	He put his material across in an interesting way.
.41	He complimented a student on his work in front of others.
.40	He tried to increase the interest of class members in his subject.
.34	He listened attentively to what class members had to say.
.32	He was friendly.
-.40	He continually emphasized grades.

Although three factors in both studies have the same labels, the constituents of each factor are not quite the same. It is interesting that these five factors appear to be comparable to five of the factors identified in the earlier study (Isaacson, et al., 1964).

FACTOR ANALYSIS OF 18 TEACHERS SELF RATINGS OF TEACHING BEHAVIOR

During the term, the participating teachers also rated themselves on the same rating form to describe their teaching behavior. A factor analysis of these ratings provides some data on the dimensions or characteristics of their teaching behavior as perceived by the teachers themselves. Five varimax rotated factors were obtained from a sample of 18 teachers. Because the sample size is small for a factor analytic study, the factors identified will therefore provide some suggestions only.

The first factor is a "Teaching Skills" factor with emphasis on the abilities to stimulate intellectual curiosity, to explain clearly, to increase the interest of class members, etc. on the one end and "feedback" on the other end of the dimension. The second factor is related to the teacher's function as an authority in evaluation and examination. The emphasis is on the fairness and appropriateness of these functions. The third factor is a bipolar factor with "feedback" on one end and "structure" or "organization" on the other. The fourth factor is also a bipolar factor with "overload" on one end and "rapport with students" on the other. The fifth factor seems related to "achievement standards" with the emphasis on teacher's expectation and high quality of student performance.

TABLE IV

FACTOR ANALYSIS OF 18 TEACHING FELLOW SELF-RATINGS

(Psychology 170, Winter, 1971)

Factor I - Skill vs. Feedback

.79	He explained clearly and his explanations were to the point.
.78	He stimulated the intellectual curiosity of his students.
.73	In his class students learned how to think more clearly about the area of this course.
.70	In his class, students learned how to read materials in this area more effectively.
.69	How would you rate your instructor in general (all-around) teaching ability?
.68	The students frequently volunteered their own opinions.
.63	He increased the interest of class members in his class.
.58	He was tolerant of student opinions.
.52	The instructor was skillful in observing student reactions.
.46	He helped students learn from their mistakes.
.44	The instructor put his material across in an interesting way.
.37	He responded to hostility constructively.
.31	He continually emphasized grades.
-.39	He followed an outline closely.
-.48	The instructor complimented students on their work in front of others.
-.48	He criticized poor work.
-.55	He kept students well informed of their progress.

Factor II - Evaluation of Achievement

.84	He was fair in grading and evaluation.
.75	The content of examinations was appropriate.
.69	How would you rate the overall value of this course?
.65	In his class students gained a great deal of knowledge about this subject matter.
.51	The instructor put his material across in an interesting way.
.45	Students argued with one another or with the instructor, not necessarily with hostility.
.41	His course was well organized.
.41	How would you rate your instructor in general (all-around) teaching ability?
.35	He increased the interest of class members in his class.
.34	He was friendly.
.33	In his class, I felt free to ask questions, to express my opinions and disagree.
.30	He stressed high quality work.

TABLE IV (Continued)

Factor III - Feedback vs. Structure

.78	He discussed test material after each quiz or exam.
.74	He let students know when they were wrong.
.69	He helped students learn from their mistakes.
.61	He was permissive and flexible.
.56	He listened attentively to what class members had to say.
.51	The content of examinations was appropriate.
.44	He was tolerant of student opinions.
.41	The instructor was skillful in observing student reactions.
.35	In his class students learned how to think more clearly about the area of this course.
.31	He maintained definite standards of student performance.
-.30	The instructor put his material across in an interesting way.
-.30	His course was well organized.
-.36	He followed an outline closely.
-.41	He continually emphasized grades.
-.46	He decided in detail what should be done and how it should be done.
-.60	He had everything going according to schedule.

Factor IV - Overload vs. Rapport with Students

.80	The instructor assigned very difficult readings.
.50	The instructor put his material across in an interesting way.
.47	Students argued with one another or with the instructor, not necessarily with hostility.
.45	He was friendly.
.44	He continually emphasized grades.
.40	He let students know when they were wrong.
.36	He criticized poor work.
.34	He asked more than students could get done.
.34	He helped students learn from their mistakes.
-.43	In his class, students learned how to read materials in this area more effectively.
-.52	He responded to hostility constructively.
-.65	His course was well organized.
-.66	He appeared sensitive to students' feelings and problems.

TABLE IV (Concluded)

Factor V - Achievement Standards

.74	He told students when they had done a particularly good job.
.73	He maintained definite standards of student performance.
.71	The students in the class were friendly.
.70	He made it clear to students about the purpose and objective of his course, and his expectation of students.
.66	He continually emphasized grades.
.62	In his class, I felt free to ask questions, to express my opinions and disagree.
.58	The instructor complimented students on their work in front of others.
.54	In his class students gained a great deal of knowledge about this subject matter.
.53	He stressed high quality work.
.49	He decided in detail what should be done and how it should be done.
.48	He asked more than students could get done.
.47	He followed an outline closely.
.41	Students argued with one another or with the instructor, not necessarily with hostility.

These five dimensions of teacher's perceived teaching behavior suggest that teachers perceive their functions to be in the domain of:

1. The teacher's abilities to stimulate intellectual curiosity, to maintain interest of class members, to present teaching material adequately, etc. This also includes the abilities to organize the class activities and the teaching materials as well.

2. The teacher as an authority to evaluate students. Appropriateness and fairness are important.

3. The teacher's ability to set clear and attainable goals and high standards of performance for students and to provide appropriate feedback.

4. The teacher's sensitivity to student's problems and needs.

These functions of teachers as perceived by the teachers themselves seem to correspond rather well to the characteristics of teaching behavior differentiating teachers as perceived by the students.

DISCUSSION

Aside from the aesthetic satisfaction derived from having eliminated the mixed sources of variance for which factor analysis has been criticized, did the use of multiple discriminant functions really contribute anything to our understanding of teaching? Our answer at this point cannot be a resounding "yes" since the dimensions identified prove to be generally similar to those identified in our earlier factor analytic studies. Probably the chief contribution is simply that of strengthening our conviction that these dimensions are quite fundamental since they have now appeared in yet another sample of teachers in a course somewhat different from the courses in which the earlier data were collected and with a method of data analysis which is somewhat cleaner with respect to our objectives.

Most encouraging is the finding that for all samples, including the teachers themselves, among the highest loading items on "skill" are those having to do with stimulating curiosity and increasing student interest. These items have to do with goals that are basic if the task of the college is to develop life-long learners. It is also reassuring to find that other items on this factor include "students gained a great deal of knowledge about this subject matter" and "students learned how to think more clearly."

A second satisfying outcome of this study has been the first successes in linking our studies of student ratings with the theoretical typology of teaching proposed in the final report of our earlier research project (McKeachie, W., Mann, R., Milholland, J., et al., Research on the Character-

istics of Effective Teaching, Final Report Project #05950, Grant #0E-4-10-001, August 1968) and developed in Mann, R., et al., The College Classroom, New York: Wiley, 1970. The "Structure" dimension clearly and consistently differentiates teachers both in student and teachers' own ratings. The items marking this factor fit very nicely with our description of the "Teacher as Formal Authority."

The "Group Interaction" dimension unfortunately emerges somewhat less consistently, but seems to correspond well to the "Teacher as Facilitator" of our typology.

Some of the other dimensions are puzzling. For example the item, "The instructor assigned very difficult reading," which has consistently marked an "Overload" or difficulty dimension, is in this analysis on the same dimension as "He was friendly" and "He continually emphasized grades." Apparently in our sample the taskmaster makes a real effort to win student acceptance.

While the present study did not unfold unexpected new vistas, it did help us to clarify the directions in which we think future research should go. We think this research taken with our previous work has made the dimensions of mathematical space in which student evaluations of teachers lies fairly clear and familiar. We now should be on fairly solid ground in moving into the area of validating different scales for the different purposes for which student ratings are used.

In our earlier work we suggested that validating ratings of effectiveness against measures of mean student achievement of course objectives depended upon more differentiated ratings of students' perceptions of their own

learning. We included such items in the present study and have demonstrated that teachers are differentiated in student ratings of achievement of these goals. We need now to validate these items against the relevant criterion measures.

But validating items against criteria of effectiveness will not necessarily yield scales maximally useful for the purposes of teacher improvement or for the purpose of informing students about teacher characteristics. We thus need research not only on which items are most useful in facilitating student improvement, but also upon how information from student ratings can best be used in a total program of teacher development. This implies the use of ratings with different types of feedback mechanisms and perhaps differing patterns of data collection.

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APPENDIX A

STUDENT OPINION QUESTIONNAIRES

Student Opinion Questionnaire

(Pretest)

Directions

This is a research study aimed at the improvement of college teaching. The form attached is to be turned in to your psychology section instructor at the beginning of the next class period.

Our previous studies have shown that students can adequately describe teaching behavior. Therefore, you are asked to spend a few minutes to help us better understand college teaching.

Descriptions of teaching behavior could be based on (a) your actual observation of teacher in the classroom, or (b) your expectation and past experience with teachers. Either perception or expectation would enable you to have some ideas about teacher's role and his behavior. The purpose of this study is to find out what you expect your psychology teacher to be like.

The questions which follow ask you to describe your section instructor's behavior. Except for the last two items, they do not judge whether the behavior is desirable or undesirable. Therefore, in no way are the questions to be considered as a "test" of your ability to answer the items or of the quality of the instructor's behavior.

Please make no mark in this booklet but record your answers on the separate answer sheet. At the top of the answer sheet fill in the blanks for sex, date, school, instructor's name (if known), section number, and your ID number. The use of this questionnaire is for research purposes only. Your instructor will not see it, but we will return to him a statistical summary of the results after the semester is over.

Now you are going to describe your Introductory Psychology (Psychology 170) Instructor. Although you may not have had a chance to meet him personally yet, please describe him as you think he is likely to be. Read each item carefully. Think about how frequently the behavior described by the item would occur in your class.

Student Opinion Questionnaire

Mark your answer to each item on the separate answer sheet in accordance with the following scales:

a. This almost always will occur.
b. This often will occur.
c. This occasionally will occur.
d. This seldom will occur.
e. This never will occur.

1. The students in the class were friendly.

2. The instructor was skillful in observing student reactions.

3. The instructor assigned very difficult readings.

4. The instructor put his material across in an interesting way.

5. He listened attentively to what class members had to say.

6. In his class students gained a great deal of knowledge about this subject matter.

7. He told students when they had done a particularly good job.

8. He decided in detail what should be done and how it should be done.

9. He explained clearly and his explanations were to the point.

10. Students argued with one another or with the instructor, not necessarily with hostility.

11. The instructor complimented students on their work in front of others.

12. He followed an outline closely.

13. The students frequently volunteered their own opinions.

14. He stimulated the intellectual curiosity of his students.

15. In his class, I felt free to ask questions, to express my opinions and disagree.

16. He maintained definite standard of student performance.

17. He responded to hostility constructively.

18. In his class students learned how to think more clearly about the area of this course.

19. He was friendly.

20. He continually emphasized grades.

21. His course was well organized.

22. He asked more than students could get done.

23. He was tolerant of student opinions.

24. He let students know when they were wrong.

25. He had everything going according to schedule.

26. He stressed high quality work.

27. He helped students learn from their mistakes.

28. He was fair in grading and evaluation.

29. He increased the interest of class members in his class.

30. He criticized poor work.

31. He appeared sensitive to students' feelings and problems.

32. He discussed test material after each quiz or exam.

33. He was permissive and flexible.

34. The content of examinations was appropriate.

35. He kept students well informed of their progress.

36. He made it clear to students about the purpose and objective of his course, and his expectation of students.

37. In his class, students learned how to read materials in this area more effectively.

For each of the following two items, select the one descriptive phrase which best represents your over-all opinion.

38. How would you rate your instructor in general (all-around) teaching ability?

a. an outstanding and stimulating instructor
b. a very good instructor
c. a good instructor
d. an adequate, but not stimulating instructor
e. a poor and inadequate instructor.

39. How would you rate the over-all value of this course?

a. superior
b. very good
c. good
d. fair
e. poor.

Please list on the back of the answer sheet, the other courses (and section numbers) you are taking this term.

Also make any comments that you may have on <u>the back of the answer sheet</u>.

Student Opinion Questionnaire

(Posttest)

Directions

This is a research study aimed at the improvement of college teaching. The form attached is to be turned in to your psychology section instructor at the beginning of the next class period.

Our previous studies have shown that students can adequately describe teaching behavior. Therefore, you are asked to spend a few minutes to help us better understand college teaching.

Descriptions of teaching behavior could be based on (a) your actual observation of teacher in the classroom, or (b) your expectation and past experience with teachers. Either perception or expectation would enable you to have some ideas about teacher's role and his behavior. The purpose of this study is to find out what you expect your psychology teacher to be like.

The questions which follow ask you to describe your section instructor's behavior. Except for the last two items, they do not judge whether the behavior is desirable or undesirable. Therefore, in no way are the questions to be considered as a "test" of your ability to answer the items or of the quality of the instructor's behavior.

Please make no mark in this booklet but record your answers on the separate answer sheet. At the top of the answer sheet fill in the blanks for sex, date, school, instructor's name (if known), section number, and your ID number. The use of this questionnaire is for research purposes only. Your instructor will not see it, but we will return to him a statistical summary of the results after the semester is over.

Now you are to describe your Introductory Psychology (Psychology 170) Instructor. Read each item carefully. Think about how frequently the behavior described by the item occurs in your class.

Student Opinion Questionnaire

Mark your answer to each item on the separate answer sheet in accordance with the following scales:

a. This almost always occurs.
b. This often occurs.
c. This occasionally occurs.
d. This seldom occurs.
e. This never occurs.

1. The students in the class were friendly.

2. The instructor was skillful in observing student reactions.

3. The instructor assigned very difficult readings.

4. The instructor put his material across in an interesting way.

5. He listened attentively to what class members had to say.

6. In his class students gained a great deal of knowledge about this subject matter.

7. He told students when they had done a particularly good job.

8. He decided in detail what should be done and how it should be done.

9. He explained clearly and his explanations were to the point.

10. Students argued with one another or with the instructor, not necessarily with hostility.

11. The instructor complimented students on their work in front of others.

12. He followed an outline closely.

13. The students frequently volunteered their own opinions.

14. He stimulated the intellectual curiosity of his students.

15. In his class, I felt free to ask questions, to express my opinions and disagree.

16. He maintained definite standard of student performance.

17. He responded to hostility constructively.

18. In his class students learned how to think more clearly about the area of this course.

19. He was friendly.

20. He continually emphasized grades.

21. His course was well organized.

22. He asked more than students could get done.

23. He was tolerant of student opinions.

24. He let students know when they were wrong.

25. He had everything going according to schedule.

26. He stressed high quality work.

27. He helped students learn from their mistakes.

28. He was fair in grading and evaluation.

29. He increased the interest of class members in his class.

30. He criticized poor work.

31. He appeared sensitive to students' feelings and problems.

32. He discussed test material after each quiz or exam.

33. He was permissive and flexible.

34. The content of examinations was appropriate.

35. He kept students well informed of their progress.

36. He made it clear to students about the purpose and objective of his course, and his expectation of students.

37. In his class, students learned how to read materials in this area more effectively.

For each of the following two items, select the one descriptive phrase which best represents your over-all opinion.

38. How would you rate your instructor in general (all-around) teaching ability?

a. an outstanding and stimulating instructor
b. a very good instructor
c. a good instructor
d. an adequate, but not stimulating instructor
e. a poor and inadequate instructor.

39. How would you rate the over-all value of this course?

a. superior
b. very good
c. good
d. fair
e. poor.

Please list on the back of the answer sheet, the other courses (and section numbers) you are taking this term.

Also make any comments that you may have on <u>the back of the answer sheet</u>.

APPENDIX B

VARIMAX ROTATED FACTOR MATRICES FROM WHICH TABLES I THROUGH IV WERE DERIVED

Varimax Rotated Factor Matrix of 18 Teaching Fellows Multiple Discriminant Analysis Factors of Student Ratings (1971 data)

(For Table I)

	Item	Factor I	II	III	IV	V
1.	Students were friendly.	.33	.02	.45	.08	.31
2.	Skillful in observing students.	.45	.14	.33	.07	.01
3.	Assigned difficult readings.	.16	-.37	.20	.40	.16
4.	Putting material in interesting way.	.40	.22	.13	.14	-.03
5.	Listened attentively to students.	.46	.03	.32	.04	-.05
6.	Students gained a great deal of knowledge.	.54	.23	-.02	.03	.22
7.	Told students about their particularly good doing.	.27	.02	.24	-.17	.03
8.	Decided in detail what should be done.	.18	.39	-.07	-.02	.28
9.	Explained clearly.	.46	.50	.08	.16	.06
10.	Students argued with one another or with instructor.	.07	-.01	.64	.15	-.10
11.	Complimented students on their work.	.07	.05	.29	-.01	.05
12.	Followed an outline closely.	-.12	.65	.11	-.02	.09
13.	Students frequently volunteered their opinions.	.34	.05	.67	.04	-.03
14.	Stimulated intellectual curiosity of students.	.57	.03	.22	.03	.01
15.	Students felt free to ask questions.	.42	-.03	.31	-.09	-.02
16.	Maintained definite standards.	.00	.06	-.06	-.05	.26
17.	Responded to hostility constructively.	.15	-.05	.10	-.03	-.15
18.	Students learned to think more clearly.	.45	.32	.11	-.03	.14
19.	Instructor was friendly.	.46	-.09	.25	.24	.04
20.	Continually emphasized grades.	-.03	.02	.01	.09	.42
21.	Course was well organized.	.36	.73	.00	.10	.17
22.	Asked more than students could get done.	.03	-.08	.10	-.01	.12
23.	Tolerant of student opinions.	.43	-.09	.35	.10	-.24
24.	Let students know when they were wrong.	.12	.13	.02	.26	.29
25.	Had everything going according to schedule.	.21	.59	-.03	.11	.11
26.	Stressed high quality work.	.02	.15	.07	-.05	.30

Varimax Rotated Factor Matrix of 18 Teaching Fellows Multiple Discriminant Analysis Factors of Student Ratings (1971 data)

(For Table I, concluded)

Item	Factor I	II	III	IV	V
27. Helped students learn from their mistakes.	.16	.15	.09	-.06	.06
28. Fairness in grading and evaluation.	.27	.04	-.07	-.16	-.10
29. Increased the interest of students.	.56	.04	.17	.05	.09
30. Criticized poor work.	-.03	.02	.02	-.33	.11
31. Sensitive to students' feelings.	.44	-.03	.26	-.14	-.12
32. Discussed test material after quiz.	-.04	.23	.07	.67	.05
33. Was permissive and flexible.	.25	-.22	.28	-.12	-.23
34. Appropriateness of examination.	.51	.20	-.17	-.16	.12
35. Kept students well informed.	.07	.08	.05	-.26	.37
36. Made it clear to students about purposes, objective, and expectation of his course.	.20	.22	-.02	-.16	.13
37. Students learned to read more effectively.	.17	.16	.19	-.14	.04
38. General teaching ability.	.66	.19	.16	.10	-.06
39. Overall value of course.	.37	.09	.12	.02	.06

Varimax Rotated Factor Matrix of 13 Male Teaching Fellows Multiple Discriminant Analysis Factors of Student Ratings (1971 data)

(For Table II)

Item	Factor I	II	III	IV
1. (1)* Students were friendly.	.28	.15	.37	.37
2. (2) Skillful in observing students.	.51	.00	.19	.07
3. (3) Assigned difficult readings.	-.03	-.13	-.03	.77
4. (4) Putting material in interesting way.	.52	.12	.05	.06
5. (5) Listened attentively to students.	.45	-.20	.21	.11
6. (7) Told students about their particularly good doing.	.36	-.03	.14	-.06
7. (8) Decided in detail what should be done.	.21	.57	-.03	-.02
8. (9) Explained clearly.	.61	.36	.06	.03
9.(10) Students argued with one another or with instructor.	.16	-.23	.64	.18
10.(11) Complimented students on their work.	.05	.08	.40	.06
11.(12) Followed an outline closely.	.07	.54	.27	-.30
12.(13) Students frequently volunteered their opinions.	.43	-.22	.52	.11
13.(14) Stimulated intellectual curiosity of students.	.61	-.07	.00	.05
14.(15) Students felt free to ask questions.	.41	-.18	.16	.04
15.(16) Maintained definite standards.	-.05	.31	-.02	.02
16.(19) Instructor was friendly.	.40	-.11	.07	.41
17.(20) Continually emphasized grades.	-.16	.51	.25	.35
18.(22) Asked more than students could get done.	.06	.04	.09	.20
19.(25) Had everything going according to schedule.	.40	.50	-.06	-.15
20.(29) Increased the interest of students.	.57	.05	.02	.10
21.(30) Criticized poor work.	-.05	.12	.24	-.18
22.(33) Was permissive and flexible.	.23	-.41	.30	.03
23.(38) General teaching ability.	.78	.01	-.01	.04
24.(39) Overall value of course.	.44	.10	.02	.05

*The number in parentheses corresponds to the item number of the Student Opinion Questionnaire in Appendix A.

Varimax Rotated Factor Matrix of 15 Male Teaching Fellows Multiple Discriminant Analysis Factors of Student Ratings (1961 data)

(For Table III)

Item		Factor I	II	III	IV
1.(38)*	General teaching ability.	.74	.00	-.01	.29
2.(39)	Overall value of course.	.23	.12	.03	.10
3. (1)	Students were friendly.	.11	.11	.11	.04
4. (2)	Skillful in observing students.	.62	.10	-.02	.19
5.(16)	Maintained definite standards.	.39	.07	.11	-.06
6.(15)	Students felt free to ask questions.	.08	.03	-.08	.21
7. (3)	Assigned difficult readings.	-.01	.78	-.03	.20
8.(10)	Students argued with one another or with instructor.	.14	-.05	-.05	-.02
9. (8)	Decided in detail what should be done.	.25	-.05	.21	.06
10. (5)	Listened attentively to students.	.15	-.04	.02	.34
11. (4)	Putting material in interesting way.	.74	-.11	.06	.48
12.(19)	Instructor was friendly.	.22	-.19	-.18	.32
13.(12)	Followed an outline closely.	-.17	-.09	.80	.13
14.(29)	Increased the interest of students.	.46	-.13	.20	.40
15.(22)	Asked more than students could get done.	.09	.54	-.03	-.14
16. (7)	Told students about their particularly good doing.	-.17	.12	-.00	.59
17.(20)	Continually emphasized grades.	-.10	-.06	-.11	-.40
18.(33)	Was permissive and flexible.	.19	-.10	-.16	.21
19.(25)	Had everything going according to schedule.	.29	.12	.72	-.13
20.(13)	Students frequently volunteered their opinions.	.35	.07	.05	-.03
21.(11)	Complimented students on their work.	.33	.01	-.01	.41
22.(14)	Stimulated intellectual curiosity of students.	.60	.03	.01	.29
23.(30)	Criticized poor work.	-.03	.15	-.20	.15
24. (9)	Explained clearly.	.67	-.02	.04	.28

*The number in parentheses corresponds to the item number of the Student Opinion Questionnaire in Appendix A.

Varimax Rotated Factor Matrix of 18 Teaching Fellows Self-Ratings on Teaching Behavior (Psychology 170, Winter, 1971)

(For Table IV)

	Item	Factor I	II	III	IV	V
1.	Students were friendly.	.22	-.14	-.01	.07	.70
2.	Skillful in observing students.	.52	.02	.41	.11	.14
3.	Assigned difficult readings.	.11	.03	.28	.80	.23
4.	Putting material in interesting way.	.44	.51	-.30	.50	-.22
5.	Listened attentively to students.	-.15	.04	.56	.07	-.07
6.	Students gained a great deal of knowledge.	-.11	.65	-.26	.23	.54
7.	Told students about their particularly good doing.	.03	-.16	.21	.16	.74
8.	Decided in detail what should be done.	-.02	-.08	-.46	.26	.49
9.	Explained clearly.	.79	-.05	.03	-.06	.12
10.	Students argued with one another or with instructor.	.01	.45	-.17	.47	.41
11.	Complimented students on their work.	-.48	-.02	.16	.22	.58
12.	Followed an outline closely.	-.39	-.05	-.36	-.28	.47
13.	Students frequently volunteered their opinions.	.68	.11	.00	-.07	.12
14.	Stimulated intellectual curiosity of students.	.78	.28	-.05	.24	-.04
15.	Students felt free to ask questions.	-.05	.33	-.09	-.23	.62
16.	Maintained definite standards.	-.16	.20	.31	.04	.73
17.	Responded to hostility constructively.	.37	.06	.08	-.52	-.16
18.	Students learned to think more clearly.	.72	-.14	.35	-.15	.27
19.	Instructor was friendly.	.12	.34	.12	.45	-.26
20.	Continually emphasized grades.	.31	-.07	-.41	.44	.66
21.	Course was well organized.	.23	.41	-.30	-.65	.27
22.	Asked more than students could get done.	-.07	-.21	-.16	.34	.48
23.	Tolerant of student opinions.	.57	-.06	.44	.05	.02
24.	Let students know when they were wrong.	.01	-.02	.74	.40	.19
25.	Had everything going according to schedule.	-.25	-.11	-.60	.11	.27
26.	Stressed high quality work.	.15	.30	.29	.09	.53

Varimax Rotated Factor Matrix of 18 Teaching Fellows Self-Ratings on Teaching Behavior (Psychology 170, Winter, 1971)

(For Table IV, concluded)

	Item	Factor I	II	III	IV	V
27.	Helped students learn from their mistakes.	.46	-.18	.69	.34	.19
28.	Fairness in grading and evaluation.	.01	.84	.18	-.15	.20
29.	Increased the interest of students.	.63	.34	-.08	-.28	-.02
30.	Criticized poor work.	-.48	.23	-.28	.36	.30
31.	Sensitive to students' feelings.	.26	-.21	.18	-.66	-.20
32.	Discussed test material after quiz.	.12	.05	.78	-.08	.02
33.	Was permissive and flexible.	.21	.10	.61	-.19	.04
34.	Appropriateness of examination.	-.01	.75	.51	.01	-.22
35.	Kept students well informed.	-.55	.17	-.20	.04	.21
36.	Made it clear to students about purposes, objective, and expectation of his course.	.19	.01	-.21	-.20	.70
37.	Students learned to read more effectively.	.69	.18	.16	-.43	.23
38.	General teaching ability.	.69	.41	-.10	.08	-.18
39.	Overall value of course.	.24	.69	.07	.10	-.15